

sound waves) have for example on an interference pattern of two or more light beams, so that the deviations of the normal interference pattern are detected, or for example detect the small Doppler shifts that this can cause. This variation might be called for example an optical microphone without a membrane. Another possible variation is to trap for example some preferably very small particles or for example ionized gas inside some enclosure and thus measure the changes in light caused by the movements of these minute particles. Another possible variation is to similarly use for example other types of frequency, such as for example very high electromagnetic frequency. Of course various combinations of the above and other variations can also be used.

2. Preferably the microphone is naturally at least partially directional, for example by putting the sensors inside a small acoustic tube, so that the tube itself allows more sounds to come in from its front than from its sides. Preferably the Microphone can be made even more directional by using a number of sensors and/or a number of high frequency sources inside the microphone, so that by taking into account the differential effect on them, the direction of the sound can be determined, and sounds from unwanted directions can be cancelled out for example by appropriate phase shifting. Another possible variation is to use for example this shifting in order to allow the user to electronically change the level of directionality and/or to electronically change the angle of input from which the sound is picked up. Preferably the default level of directionality is not too high, such as for example not less than a spread of 20 or 30 degrees, since otherwise for example the user's movements can cause the speech to fluctuate in and out of focus. Another possible variation is to use for example a Fourier transform in order to filter out the relevant directions. If MEMS sensors are used, the directionality control can be even easier, since each MEMS chip can use a large array of such sensors, so data from a number of different sensors can be used,